Tracing the Origins of Brazil's Great Acceleration: The SPVEA's Primeiro Plano Quinquenal and the Technoscientific Recovery of Amazonia, 1945-1959

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Em busca das origens da Grande Aceleração no Brasil

O Primeiro Plano Quinquenal da SPVEA e a recuperação tecnocientífica da Amazônia, 1945-1959

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Abstract In 1955, the SPVEA launched the *Primeiro Plano Quinquenal* in response to growing international interest in Amazonia's resources and internal pressure to address the region's chronic underdevelopment. The *Plano* was the largest modernization plan attempted in Amazonia until then. It aimed at transforming the region's rich ecosystem into the driving force of Brazil's development as well as a major raw material provider for global markets. The article examines this neglected episode of Brazilian developmentalism as an important experience preparing the entrance of Brazil in the so-called Great Acceleration. The *Plano* established a rational method and constructed a technoscientific infrastructure that did not just organize the modernization of the region as a whole but formed an Anthropocene culture in Amazonia. Via their planned approach to the modernization of Amazonia, the SPVEA planners introduced new representations, demands, and expectations of the

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region which encouraged the exploitation of its biological reality and linked it to the advancement of Brazil. Thus, the article explores, some specificities of the Great Acceleration in the Global South and sheds new light on the political and cultural origins of the Anthropocene in Brazil.
Keywords Great Acceleration, science, Amazonia.

Resumo Em 1955, a Superintendência do Plano para a Valorização Econômica da Amazônia (SPVEA) lançou o *Primeiro Plano Quinquenal*, em resposta ao crescente interesse internacional nos recursos da Amazônia e à pressão interna para tratar do crônico subdesenvolvimento da região. O documento, o maior plano de modernização elaborado para a Amazônia até aquela data, visava a transformar o rico ecossistema da região em uma força propulsora do desenvolvimento brasileiro, bem como fazer dessa região uma grande fornecedora de matéria-prima para os mercados globais. Este artigo propõe-se a estudar esse episódio negligenciado do desenvolvimentismo brasileiro como uma experiência importante na preparação da entrada do Brasil na chamada "Grande Aceleração". O *Plano* estabeleceu uma metodologia racional e construiu uma infraestrutura tecnocientífica que não apenas organizaram a modernização da região como um todo, mas formaram uma cultura antropocênica na Amazônia. Ao propor uma abordagem planejada da modernização da Amazônia, os burocratas da SPVEA introduziram novas representações, demandas e expectativas regionais que favoreceram a exploração daquela realidade biológica e vincularam a região ao progresso do país. Dessa forma, este artigo investiga algumas especificidades da Grande Aceleração no Sul Global, com o objetivo de contribuir para iluminar as origens políticas e culturais do Antropoceno no Brasil.
Palavras-chave Grande Aceleração, ciência, Amazônia

Introduction

In 1955, the newly created Superintendency for the Planning of the Economic Valorization of Amazonia (SPVEA) launched the first region-wide modernization plan for Brazil's immense Amazonian hinterland.

The ambitious state-led *Primeiro Plano Quinquenal de Valorização Econômica da Amazônia* (1955-1959) aimed at durably overcoming the region's chronic socio-economic instability and its marginal position vis-à-vis the rest of the country. But, for the SPVEA planners, and particularly its director, the Amazonian historian Arthur César Ferreira Reis, the plan embodied a wider, national and global ambition. They conceived the plan to rationally occupy and economically modernize the whole Amazon basin as a template for the building of a unified and modern Brazil.

The *Primeiro Plano Quinquenal* remains a relatively ignored episode of Brazil's modern history (Marques, 2013; Oliveira Jr, 2009; Trindade, 2014). However, as I will show in this article, the action of the SPVEA was a significant episode in the formation of Brazil's Anthropocene culture. The plan catalyzed the creation of new technical agencies, the production of new scientific knowledge, technologies, practices and approaches to modernization, which conveyed a novel, technocratic imaginary of Amazonia and Brazil. The plan inaugurated in Amazonia a new Anthropocene culture that was to be replicated in the rest of Brazil's underdeveloped regions. In that regard, the *Plano* offers a valuable object of study to scrutinize the technoscientific culture that prepared and facilitated the "Great Acceleration" in Brazil.

In the environmental humanities and the geosciences, the Great Acceleration designates the unprecedented increase of global production, consumption and environmental destruction in the second half of the twentieth century, which is commonly said to have precipitated the Anthropocene, the era in which humans became a planetary-scale geological force (Steffen *et al.*, 2015, p.82-83; McNeill; Engelke, 2014, p.5). Although the Great Acceleration is generally depicted as a global phenomenon, it has not unfolded seamlessly and homogeneously across the globe. Differences exist between the industrialized North and the industrializing South, which indicate that the new regimes of resource use associated with the Great Acceleration unfolded differently in time and place. For the Global South, as Issberner and Léna argue, post-war development is at the core of their insertion in the Great Acceleration.

The Cold War provided various incentives and imposed demands on the Global South to develop which exerted a unique pressure on southern countries to adapt their social, economic, but also political, cultural and environmental orders to the demands of global capitalism (Engerman; Haefele; Latham, 2003; Escobar, 1994). This forced march to capitalist-industrial progress crystallized with the imperative to catch-up with the industrialized world and led countries like Brazil to launch, in a short time, titanic and often authoritarian development projects, such as the transformation of immense tracts of forested land into intensive farm fields (Issberner; Léna, 2016, p.5-8; Dean, 1997).

The double-edge position of countries like Brazil in the Anthropocene call to question the dominant understanding of the history of the Great Acceleration. Bearing in mind the differentiated high-speed trajectories of southern countries like Brazil, environmental historians like José Augusto Pádua contest the global, teleological and predominantly economic explanations of the Great Acceleration. Instead, they suggest to look beyond production, consumption and environmental destruction. In that regard, Pádua suggests that the Great Acceleration was also triggered by the formation of an "Anthropocene culture" (Pádua, 2016, p.23). The term refers to a material and non-material or symbolic culture that made possible the regime of resource use associated to the Great Acceleration. It considers socio-economic infrastructures such as transport systems and industrial machinery but also discourses and representations such as modernization and technoscientific determinism. If the former provided the direct means required to accelerate production and consumption, the latter contributed also by conveying mental representations, needs, and attitudes that commodified nature and encouraged its exploitation.

In this article, I aim to unravel how the SPVEA and its *Plano* contributed to form some of the cultural and technoscientific standards of the Anthropocene in Brazil. Regardless of its limited material impacts, the *Plano* formalized a new anthropocenic mindset regarding Brazil's tropical hinterland. I will show that its promoters conveyed through the *Plano* a vision of the Amazon basin as an integrated whole and

conceived all aspects of its modernization together as part of a coordinated and rational endeavour. They projected new material demands, expectations and meanings of national and global significance onto Amazonia. I contend that the scientific methods, knowledge and discourses that the *Plano* introduced formed the mental, institutional and technocratic basis on which later large-scale development projects were built. Before discussing the Anthropocene culture articulated in the *Plano*, and unravelling the role of science and technology in it, I will first shed light on the local and international origins of the SPVEA and highlight its technocratic nature.

Amazonia and the challenge of postwar reconstruction

The Great Acceleration unfolded at a moment of political and international recomposition following the disruptions generated by the Second World War. The task of post-war reconstruction was tremendous and was taken up in a highly uncertain international political context. Europe was in ruins and its hegemony in international affairs challenged as the United Nations replaced the League of Nations, while East-West tensions arose and Empires crumbled in the face of growing anti-colonial movements throughout the Global South. In 1945, organizing the reconstruction of Europe and the stabilization of world order entailed important global challenges such as feeding a fast-growing world population, relocating millions of refugees displaced by the war and rebuilding countries devastated by the conflict (Hamblin, 2012; Staple, 2003; Reinisch, 2011; White, 2011). These issues put enormous pressure on natural resources and nature as a whole.

The utilization but also the protection and conservation of natural resources consequently stood high on the agenda of the great powers and occupied the emerging UN system. Amazonia was on the agenda of many UN technical agencies. The future of its resources had been discussed at the United Nations Scientific Conference on the Conservation and Utilization of Resources (UNSCCUR) in 1949, which

promoted the development and circulation of techniques of resource conservation and utilization between nations to enhance the production of natural resources for the reconstruction effort.[1] Other UN agencies such as the United Nations Scientific, Cultural and Educational Organization (UNESCO) and the Food and Agriculture Administration (FAO) prepared specific projects to develop and exploit the potential of Amazonia. Between 1946 and 1949, the Natural Science Section of UNESCO planned the creation of the International Institute for the Hylean Amazon (IIHA). The IIHA was supposed to become the world's leading platform for tropical research. For UNESCO, the goals of the IIHA were to organize international scientific research on the challenge of tropical life while at the same time respond to the pressing international demand for natural resources that stemmed from the reconstruction effort (Domingues; Petitjean, 2004; Maio, 2005). In April 1948, the FAO organized the Latin American Conference on Forestry and Forest Products in Teresópolis to explore ways to create a productive forest industry and overcome the timber shortage affecting war-torn European countries.[2]

In Brazil, these international conferences took place at a delicate moment when the future of the country's immense Amazonian territory was particularly vague. Historically, Amazonia constituted a forgotten chapter of Brazil's national history that the state either ignored or failed to fully integrate, particularly following the end of the rubber frenzy in the region in 1912.[3] Seeing Amazonia's perceived emptiness as a threat, the leader of the authoritarian Estado Novo (1937-1945), Getúlio Vargas, launched the *Marcha para o Oeste* in 1938 with the goal of inserting the Amazonian hinterland into the rest of the national

1 Proceedings of the United Nations Scientific Conference on the Conservation and Utilization of Resources, 17 Aug. – 6 Sep. 1949, Lake Success, New York. Vol. I, Plenary Meetings. New York: United Nations Publications, 1950. p.vii-viii.

2 FAO and Latin America. The Latin American conference on forestry and forest products. *Unasylva*, vol. 2, n. 3, May./Jun., 1948. Available in: http://www.fao.org/docrep/x5344e/x5344e00.htm#Contents. Consulted: Feb. 13, 2018.

3 On the rubber boom and the Rubber Defense Plan see: HECHT, 2013; FEITOSA; SAES, 2013.

territory. The outbreak of the Second World War put the region on the global theater of war and reinforced the urgency to control it. Fear of Axis invasion of South America through the Northeast of Brazil following Nazi Germany's conquest of continental Europe combined to Japanese control over the world's largest rubber plantations in Indonesia precipitated the United States to conclude the Washington agreements in March 1942 and participate in Vargas' Amazonian strategy (McCann, 1974, p.125-137; Wilkinson, 2009, p.82-135). These agreements included an ambitious programme, the so-called *Batalha da Borracha* whose goals were to revive Amazonia's old rubber industry and supply the US war effort with rubber. With the *Batalha,* Vargas' original developmental ambition shrank to an almost exclusive focus on scaling up rubber production (Wilkinson, 2009, p.257-259; Garfield, 2013, p.207-209).

With the war's end, however, the future of the newly re-born rubber industry and the related attempts to occupy Amazonia were threatened by the reopening of Indonesia's plantations and left Brazil with no alternative to contain the growing international interest in the region as well as the military and economic power position of the US in it. The situation led an emerging class of technocrats, scientists and experts to respond, on their own terms, to the international expectations building up around Amazonia's natural resources, to the failure of the rubber revival and to the problematic presence of the US that resulted from it. Although they impeded the IIHA and contested the Teresópolis conference in order to reassert Brazilian control over the utilization of Amazonia, they also recognized the developmental potential of these international cooperation initiatives from the UN and seized the global expectations associated with the modernization of Amazonia as an opportunity to strengthen Brazil as a whole.

These experts, led by the military scientist Álvaro Alberto da Motta e Silva, the historian Arthur Cézar Ferreira Reis and the economist Rômulo Almeida, responded to the debates on Amazonia by organizing Brazil's scientific capacities and formulating its own technocratic response to the international and developmental pressure posed by the Amazon basin. Like elsewhere in Europe and North America, science

became a new strategic resource for political and intellectual elites to imagine and organize the future, orient nation-building and modernize state formation to meet the postwar uncertainties (Krige; Barth, 2006; Krige; Wang, 2015). It was the age of Big Science in which states began to sponsor largescale scientific research and used its transformative power to advance their interests in the national and international arena (Galison; Hevly, 1992). In Brazil, this movement burgeoned with the Estado Novo and blossomed under the governments of Vargas (1951-1954) and Kubitschek (1956-1961) whose developmental plans led to the creation of a panoply of technical, development and planning agencies such as Petrobras, the Banco Nacional de Desenvolvimento and the Superintendência do Desenvolvimento do Nordeste (SUDENE) (D'Araujo, 1992). As part of this movement, a wide range of scientists, engineers and Amazonian specialists coalesced around Reis and Álvaro Alberto to orchestrate the creation of the National Research Council (CNPq), and more importantly to our case, the SPVEA and the National Institute for Amazonian Research (INPA) as an alternative to the IIHA.[4] This technocratic front was bound by a sense of the nation, an trust in the state's disciplining action and a faith in the transformative power of science and technology. All envisioned the advancement of science not for science's sake but for Brazil's sake. For Álvaro Alberto and the commission of experts in charge of creating the CNPq, the future of Brazil was dependent on the development of the country's scientific capacity. "To exploit the potential of our resources, to raise the standards of living of our people and to strengthen the integrity of the Brazilian nation", the commission concluded, "the creation of the new organization [i.e., the CNPq] is an urgent imperative of our historical evolution".[5]

4 As superintendent of the SPVEA, Reis participated in the making of the INPA as member of the CNPq's special commission on the INPA that Álvaro Alberto summoned in 1953.

5 DA MOTTA E SILVA, Álvaro Alberto. Exposição de motivos enviada ao senhor Presidente da República, General Eurico Gaspar Dutra, pela comissão imcubida de elaborar o anteprojeto de estruturação do conselho nacional de pesquisas. CNPq/INPA Archives, Museu de Astronomia e Ciências Afins, Rio de Janeiro (subsequently C/IP), CNPq. t.1.1.001, p.2.

Just as Álvaro Alberto did for the CNPq, Arthur Reis instilled this growing belief in the transformative power of science into the SPVEA. Although he appeared at a late stage in the making of the SPVEA, it was under his guidance that the planning agency eventually emerged. Deadlocked for half a decade, the question of Amazonia's valorization was eventually resolved by the *Conferência Técnica sobre a Valorização Econômica da Amazônia* that Vargas organized in 1951 to devise a national plan for Amazonia's socio-economic awakening. The three-month long conference dealt with all aspects of Amazonia's alleged problematic underdevelopment and enabled its acting secretary, Reis, and a wide gallery of economists, zoologists and agronomists to explore how science-driven public action could contribute to valorize the region's natural potential for Brazil and beyond.[6] As the president of the conference Romulo Almeida explained, in his introductory speech, that the conference aimed at "objectively demonstrating that the Brazilian Amazon has resources" that, via adequate, rational public action, could "make it a flourishing region, growing from its own means and contributing to the development of Brazil and to the development of its neighboring countries and the friends of the continent".[7] Interestingly, the experts at the conference postulated that valorization could cast Amazonia on a national and even global scale. In their conclusions, they linked the rational valorization of Amazonia's natural reality via, for instance, rational agriculture and industrial raw material extraction to the wider economic ambition of catering to the development needs of the Latin American continent and beyond. The success of the *Conferência Técnica* eventually paved the way to the creation of the SPVEA in 1953 and, as we will see in section two, informed its technocratic approach to regional modernization.

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6 CARDOSO, Iberê de Souza; CARVOLIVA, Aédo de. *Superintêndencia do plano de valorização econômica da Amazônia*. Fundação Getulio Vargas, 1955. p.32. Available in: http://bibliotecadigital.fgv.br/dspace/handle/10438/11834. Consulted: Feb. 13, 2018

7 SPVEA. Valorização econômica da Amazônia: subsídios para seu planejamento. In: *Relatórios e principais contribuições da conferência técnica sobre Valorização Econômica da Amazônia*. Rio de Janeiro: Departamento de Imprensa Nacional, 1954. p.vi.

The federal law 1806 of January 6, 1953 creating the SPVEA, granted its first director Reis and his staff the task to "stimulate the occupation of Amazonia in a Brazilian fashion", and "build an economically stable and growing society" that would "develop in parallel and complement to the Brazilian economy".[8] Reis summoned the *Comissão de Planejamento* to first devise the *Programa de Emergência* (1954), which laid the conceptual and programmatic guidelines of the *Primeiro Plano Quinquenal.* Based on the conclusions of the *Conferência Técnica*, Reis relied heavily on science to design the SPVEA's development plans. As he explained, the valorization of the Amazon region was in great part conceived as a technical and scientific task that required a greater scientific understanding of the Amazonian biotic reality. Reis postulated that "only via scientific investigation, which", he believed, "can reveal Amazonia's reality in all its depth and details, can we frame and solve its problems".[9] The development of science and the enrolment of a broad range of scientists and specialists was in his eyes the indispensible condition to Amazonia's development. To this end, and with the support of Álvaro Alberto's CNPq, the SPVEA and the newly created INPA (1953) worked hand in hand to conduct the *Plano*. As we will see in the following section, the INPA became an important tool to implement the SPVEA's *Plano* and advance the technocratic and anthropocenic transformation of the Brazilian Amazon.

Over a little less than a decade, Reis, Álvaro Alberto and the broad constellation of experts around them responded to the alleged underdevelopment problem of Amazonia and the growing post-war international demand for its resources with the creation of two technocratic agencies, the SPVEA and the INPA. With the *Plano*, the SPVEA and the INPA prepared the ground to the Great Acceleration in Amazonia by

8 SPVEA. *Perspectiva do primeiro plano quinquenal e concepção preliminar da valorização econômica da Amazônia*. Belém: Setor de Coordenaçao e Divulgação, 1954. p.4. Available in: http://www.sudam.gov.br/conteudo/menus/referencias/biblioteca/arquivos/PlanoQuinquenal-doc-02928320140903115431.pdf. Consulted: Feb. 13, 2018.

9 SPVEA. *Perspectiva do primeiro plano quinquenal e concepção preliminar da valorização econômica da Amazônia*, p.28.

linking the region's ecological importance to the economic ambition of making the region into the future storehouse of Brazil and the world. In the following two sections, I will dissect what the SPVEA's approach to Amazonian development consisted of concretely and will highlight its novelty in terms of its organization, its coordinated approach, the scale of its action and the global significance of its agenda.

The SPVEA: past practices and new approaches to the valorization of Amazonia

In their first report, *Concepção Preliminar da Valorização Econômica da Amazônia*, the SPVEA planners laid out the guiding principles of the *Plano* and explained that the success "of any work of valorization of Amazonia depends on succeeding to establish a profitable agriculture, because without it […] there will be no possibility to build an advanced civilization in the region […] aiming at the territorial, economic and social integration of the Amazon region into the national unit".[10] For them, the *Plano's* task boiled down to replacing the sluggish and rudimentary social conglomerates they identified with Amazonia's traditional extractivism by a rationally organized agro-industrial society. For the SPVEA planners, extractivism refered to what Reis called "the cycle of backcountry drug extraction" which he used to designate the predatory foraging practices traditionally found in the Amazonian hinterland such as nuts and spice gathering as well as rubber-tapping.[11] The way they problematized Amazonia was however not new, nor were the proposed solutions. The demonization of traditional extractivism and the valorization of rational agriculture and cattle ranching had both a long history. Critiques of small-scale extractivism can be traced down to the first rubber boom (1850-1920) while attempts to expand agricultural

10 SPVEA. *Perspectiva do primeiro plano quinquenal e concepção preliminar da valorização econômica da Amazônia*, p.20, 24.

11 REIS, Arthur Cézar Ferreira. Aspectos econômicos da dominação lusitana na Amazônia. *Boletim Geográfico*, ano V, n. 51, p.268, Jun. 1947.

practices had started as far back as the colonial period. Agricultural development eventually peaked during the Estado Novo when the Instituto Agronomico do Norte (IAN) and a host of experts sought to establish small-scale agricultural settlements and cattle ranching throughout the region (Chambouleyron, 2013; Hecht, 2013; Wenstein, 1983; Garfield, 2013). Similarly, the SPVEA's reliance on science and technology perpetuated an old tradition that made the scientist one of the leading agents of civilization in Amazonia. Scientists and engineers had been mobilized since the early days of Brazil's independence to explore the region and modernize its economy via for instance the Museu Paraense Emílio Goeldi in Belém but also to improve the local population's living and health conditions as Oswaldo Cruz and the sanitary specialists of the Serviço Especial de Saúde Pública (SESP) did throughout the first half of the twentieth century (Hochman, 2016; Sanjad, 2010; Stepan, 1976; Campos, 2006).

However, the SPVEA was the first attempt of a full-blown reinvention of the region as a whole. Reis and his staff envisioned the goals of territorial occupation, socio-economic development and national integration as the many facets of a single, region-wide problem of structural underdevelopment. Prior to the launch of the *Plano,* most of these past attempts to transform Amazonia's bio-social reality had remained issue-specific, isolated, localized and relatively small in scale. Unlike the institutions of the First Republic, the agencies of the *Marcha* and the *Batalha* marked a break as they represented the embryo of an integrated approach to rubber production. The SESP, the Banco da Borracha and the IAN worked alongside to increase the yielding potential of rubber trees and improve the productivity of rubber tappers (Wilkinson, 2009). More generally, the SPVEA built on the *Marcha* and the planning experiences of the Estado Novo and found inspiration in the same model, the American *Tennessee Valley Authority* (D'Araujo, 1992). What the SPVEA did differently — and quite uniquely — with the *Plano*, however, was to broaden and scale up the Estado Novo's planned approach to rubber production.

The SPVEA was thus neither the first scientific institution nor the first planning agency to address regional underdevelopment — the *Comissão do Vale do São Francisco* preceded it in 1948 — but it was the first in Brazil that considered and implemented modernization to an entire region, half a decade before SUDENE (1959), which is commonly seen as a landmark of postwar regional planning (Buckley, 2017). To overcome the perceived dead-end of the rubber industry, solve the problem of regional underdevelopment and respond to the pressing international demand for tropical resources, the SPVEA advanced with the *Plano* a method to carry out the wholesale transformation of Amazonia's natural and social landscapes. As we will see, the SPVEA and the method inaugurated through the *Plano* were novel in terms of scale by operating beyond the regional level, in terms of approach by conceiving modernization as a multi-dimensional and integrated process and with regard to the role of science and technology on which the SPVEA experts relied exclusively to model interventions. Before turning to the plano to unravel what this method of modernization entailed, let us first look at how it permeated the SPVEA at the organizational level.

The SPVEA was to operate on a different political and financial scale than its predecesors. Although a regional planning institute, the SPVEA was politically and financially backed by the federal government as well as the concerned Amazonian states and municipalities which were to earmark at least three per cent of their respective annual budget to the SPVEA's funding body, the Fundo de Valorização Econômica da Amazônia. The budget allocated to the *Plano* eventually mounted to CR$ 8,2 billion over the first five years of its existence and to CR$ 1,1 billion in its first year, that is three times more than what was granted to the *Programa de Emergência*. Besides its unmatched financial capacities, the SPVEA was authorized to involve any public agencies and collaborate with the private sector to carry out its task of modernization. Interestingly, most existing development and scientific agencies in Amazonia like the Museu Paraense Emílio Goeldi, the IAN and the SESP, were absorbed into the SPVEA's structure along with the INPA and granted funds and research programs. Under the supervision

of the SPVEA, these institutions were eventually adjusted to serve the modernization agenda. Take, for instance, the INPA whose scope of scientific activities was drastically reduced following the appointment of Reis as new director in 1956 to focus on applied research relevant to the implementation of the *Plano*.[12] The SPVEA also commissioned at will other federal institutions such as the Instituto Nacional de Imigração e Colonização, the conselho nacional de geografia or the Serviço Nacional de Malária and sought technical cooperation with the UN agencies, as Reis rapidly did with the FAO.

The organization of the SPVEA reflected the agency's regional scale of action and multi-dimensional approach to modernization as well. The SPVEA's administration was decentralized with its headquarters in Belém and two regional divisions, one in Manaus to deal with Amazonia's western territories and the other in Cuiabá, to focus on the colonization fronts in Southern Amazonia. The Superintendent, Reis, was assisted by the *Comissão de Planejamento*, which was composed of six specialists and nine representatives of the concerned Amazonian states. Together they were to define the *Plano* and decide on necessary refinements on a yearly basis. To do so, the *Comissão* relied on six specialized sub-commissions appointed to investigate six specific domains of modernization, that were agricultural production, natural resources, transport, communication and energy, credit and commerce, healthcare and cultural development.[13]

Despite the high degree of specialization within the SPVEA's organization, the *Comissão* and its sub-commissions were organized in such a way as to enable the formulation of a multi-dimensional and integrated approach to modernization. While the specialized sub-commissions

12 Relatório das atividades do conselho nacional de pesquisas em 1955, apresentado, ao excelentíssimo senhor Presidente da República em 8 de fevereiro de 1956. 8 February 1956. C/IP, CNPq. t.1.2.007-0009, p.98 (subsequently referred to as CNPq. t.1.2.007-0009). On the SPVEA's attitude towards the INPA, see SPVEA, *Primeiro Plano Quinquenal*. Rio de Janeiro: Departamento de Imprensa Nacional, vol. 1, 1955. p.356.

13 CARDOSO, Iberê de Souza; CARVOLIVA, Aédo de. *Superintêndencia do plano de valorização econômica da Amazônia*, p.41-43.

investigated a variety of aspects ranging from agricultural, animal and forestry production to energy policy, flood protection, the social development of local populations and scientific research capacities, the sub-commission of coordination strove to generate coherence of action. The work of this sub-commission, which was composed of the president of each specialized sub-commission, was to coordinate the different problems and solutions identified by the specialized subcomissions and provide the *Comissão de Planejamento* with an integrated set of measures to stimulate Amazonia's modernization. The *Plano* resulted from this coordinated work and integrated approach. This approach was eventually also reflected in the budget distribution with about sixty per cent of the funds allocated to agriculture, health, transport, communication and energy and the remaining forty per cent distributed relatively equally to the other poles of actions that were commerce, cultural development and natural resources.[14] In the next section, I will detail what the SPVEA's multi-dimensional and integrated approach looked like in practice by investigating the elaboration of the *Plano*.

The technocratic perspective: Amazonian modernization and the Primeiro Plano Quinquenal

Reis and the *Comissão* designed the *Plano* based on a multidimentional approach to Amazonia's underdevelopment. The *Comissão* did not problematize Amazonia as just a naturalistic challenge, but conceived it primordially as a human, social and natural conundrum. What preoccupied the SPVEA planners, as Iberê de Souza Cardoso and Aédo de Carvoliva explained, were less "the conditions of the Amazonian environment [which] did not impede progress [or] the Amazonian climate [that] was not hostile to human life".[15] Quite the contrary, "[Amazonia's]

14 SPVEA. *Perspectiva do primeiro plano quinquenal e concepção preliminar da valorização econômica da Amazônia*, p.17.

15 CARDOSO, Iberê de Souza; CARVOLIVA, Aédo de. *Superintêndencia do plano de valorização econômica da Amazônia*, p.60.

peculiar geographical and demographic conditions, historical process, the primitive nature of its economy [and] the volatility of its social structure […] were the primary causes of its many problems".[16] Amazonia's social primitivism and economic *atraso* were, for Reis and his experts, the result of a web of seven core challenges. These challenges concerned the natural landscape of Amazonia such as the problem of production and industrialization of raw material including agriculture, its socio-economic infrastructure with the problem of transport, the problem of distribution of capital, and its population via the problem of nutrition, the problem of health, the problem of cultural development and the problem of recuperation of the extractivist populations.[17] The SPVEA considered these challenges of equal importance and addressed them as interconnected issues that required an integrated and coordinated approach in order to be solved.

The SPVEA opted for a new legal and territorial definition of Amazonia that served the *Plano's* integrated approach to Amazonian modernization. Besides the intervention-friendly administrative framework called *Amazônia Legal*, the SPVEA introduced with the *Plano* a re-construction of the region based on the concept of *zoneamento*.[18] *Zoneamento* consisted in the demarcation of economically promising and politically strategic zones on which SPVEA's interventions would primarily take place. The *Comissão* selected each zone methodically based on a combination of social, economic and political criteria. As the *Comissão* explained, a zone had to demonstrate "a conjunction of favourable factors that would enable the fastest form of development"

16 CARDOSO, Iberê de Souza; CARVOLIVA, Aédo de. *Superintêndencia do plano de valorização econômica da Amazônia*, p.3-4.

17 SPVEA. *Perspectiva do primeiro plano quinquenal e concepção preliminar da valorização econômica da Amazônia*, p.5.

18 *Amazônia Legal* designates a new territorial division of the Amazon region that grouped nine Brazilian states (Acre, Amapá, Amazonas, Pará, Rondônia, Roraima, Tocantins, parts of Mato Grosso and Maranhão) into a unique planning territory, which aimed at facilitating federal developmental interventions

such as a dense population, rich soils, abundant forests and accessibility.[19] But it should also display a strategic value regarding land occupation. In accordance with the military, the SPVEA planners located several zones in disputed borderlands like Acre or in areas neighbouring the existing pioneer fronts of Mato Grosso and Nordeste to facilitate the transfer of population from the denser southern and northeastern states to the less populated Amazonian territories.

Although political aspects were also considered, the work of demarcation undergirding the SPVEA's plan of *zonaemento* was predominantly scientific and involved institutions like the INPA. The INPA conducted several large-scale expeditions involving international researchers along the rivers Urubu, Manacapuru and Branco. The first campaign in the Territory of Rio Branco in Amazonia's Northern border between 1954 and 1955 exemplifies how science permeated the plan by stirring and propelling every level of the valorization process. The Rio Branco expeditions involved fifty-seven Brazilian researchers as well as the French geographers Francis Ruellan and his assistant Yvonne Beigbeder from the École Pratique des Hautes Études.[20] The expeditions aimed at preparing several surveys of the formerly rubber-rich Rio Branco territory, which served as a basis for the SPVEA's *zoneamento* plan in the region. These surveys provided an understanding of the geographical and geomorphological structure of the region and were used to orient colonization, facilitate the prospection of high-value mining and localize appropriate land for the construction of hydroelectric dams, roads and military airbases.[21]

The *Comissão* eventually identified 28 zones in total and approached each as laboratories of modernization. These zones were homogeneously

19 SPVEA. *Perspectiva do primeiro plano quinquenal e concepção preliminar da valorização econômica da Amazônia*, p.8.

20 On the Rio Branco expeditions and the INPA expeditions over the period 1954-1975, see: CNPq. T.6.4.003-0001, p.10. See also: PANZU, 2015, p.63.

21 Francis Ruellan, *Expedições Geomorfológicas no Território do Rio Branco.* Rio de Janeiro: INPA, 1957 as referred to and described by PANZU, 2015, p.55-88; CNPq. T.6.4.003-0001, p.10.

scattered along the entire length of Brazil's Amazonian border and along the banks of the Amazon River, the region's main transport system. The *Comissão* hoped to create with these zones a tight web of interconnected settlements, which, to the military's satisfaction, would also contribute to reinforce Brazilian presence and control over formerly empty stretches of the national territory. Besides demonstrating Brazilian authority over Amazonia, these zones worked as testing benches within which the SPVEA's experts could experiment with modernization. Their goal was as much to transform these zones into stable and thriving communities as it was to identify the ways and methods to scientifically engineer this transformative process. Each zone worked as an ideal-typical sample of the Amazonian bio-social landscape where planners could rationally identify and scientifically craft new socio-economic, but also technical, moral and human structures conducive of durable development. With *zonaemento*, they broke down the region's social and natural landscape into experimental spaces within which they designed and applied a programme of modernization that could be replicated elsewhere in Brazil.

Just as these zones were defined rationally, the challenges that the SPVEA planners faced in each of them were also considered "technical problems" that they sought to comprehend and overcome with scientific research and technological interventions.[22] "Scientific research" as Reis repeatedly argued, "was evidently essential to enable the design of definitive solutions" to Amazonia's underdevelopment.[23] These novel scientific insights and technologies of Amazonia were "to guide, update, and improve the Plan and provide the technical elements required for its execution".[24] As a key institution in the SPVEA's set up, the INPA

22 SPVEA. *Perspectiva do primeiro plano quinquenal e concepção preliminar da valorização econômica da Amazônia*, p.23.

23 REIS, Arthur Cézar Ferreira. Fundamentos, história, estrutura e funcionamento da S.P.V.E.A. In: REIS, Arthur Cézar Ferreira, *A Amazônia e a Integridade do Brasil*, Manaus: Edições Governo do Estado do Amazonas, 1966. p.216.

24 CARDOSO, Iberê de Souza; CARVOLIVA, Aédo de. *Superintêndencia do plano de valorização econômica da Amazônia*, p.20.

illustrates the technoscientific commodification of Amazonia that undergirded both the planning and interventions of the *Plano.* Concretely, the INPA was expected to yield new geological, hydrographical, botanical and social understandings of Amazonia's bio-social reality. The work of the INPA was important for the modernization process as its action facilitated the translation of economically inert sections of the Amazonian environment into quantifiable, modifiable and exploitable resources. As the SPVEA experts explained, "to know [these spaces] is to invent them, and, by extention, know how to dispose of them", which would eventually contribute to "one day, incorporate [these spaces] into the economic life of the region".[25]

To scientifically commodify Amazonia's ecosystem, the INPA deployed a vast programme of practical research that ranged from studying the composition, utility and cultivation capacity of endemic plants to conducting ecological surveys on the food chains of potentially marketable fish. This work of commodification and valorization is particularly visible in the action of the Center for Forestry Research and the Chemistry Division of the institute. In 1954, the Center for Forestry Research carried out investigations on rational forestry and its industrial commodification via research on biofuel extraction and the creation of pilot factories on cellulose in view of stimulating paper production in the region. Meanwhile the Chemistry Division designed the industrialization of fertilizer production and investigated the extraction process of several endemic plant oils such as buriti for the soap, oil and rubber industry. In that regard, the institute's research activities served directly the agricultural and industrial ambition of the *Plano*.[26]

The scientific commodification — and hence cognitive appropriation — of Amazonia that the SPVEA organized with the *Plano* via

25 SPVEA. *Primeiro Plano Quinquenal.* Rio de Janeiro: Departamento de Imprensa Nacional, vol. 1, 1955. p.361

26 CNPq. t.1.2.007-0009, p.98; Relatório das atividades do Conselho Nacional de Pesquisas em 1956. 1957. C/IP, CNPq. t.1.2.007-0013, p.67; Instituto Nacional de Pesquisas da Amazonia, relatório das atividades durante o primeiro semestre de 1956. 1956. C/IP, CNPq. T.6.4.003-0001, p.8, p.14-15 (subsequently referred to as CNPq.T.6.4.003-0001).

institutions like the INPA served a multi-dimensional reorganization of the region's bio-social reality. The SPVEA sought to initiate an evolutionary leap forward with the *Plano* by "gradually converting the extractivist economy of the Amazonian forestland and the commercial economy as developed in Amazonia's urban centers into an agricultural and industrial economy".[27] As we have seen above, the *Plano's* attempt to create in the 28 zones a web of nuclei of agro-industrial development responded to a plurality of problems that encompassed the transformation and improvement of the land, the reorganization of the socio-economic structure, the recovery of man and the development of the technoscientific infrastructure required to monitor, control and plan this multi-dimensional process of transformation.

Rather than dealing with each problem individually and in isolation from one another, the SPVEA devised an approach that addressed these problems altogether as part of the same plan of action. The approach of the SPVEA was integrated at the level of the *zonaemento* as the *Plano's* action on agriculture for instance demonstrates. In each zone identified as suitable for agriculture, the SPVEA deployed a multilevel intervention, where land, man and socio-economic structure were to be reworked. As the first level of intervention, the *Comissão* sought to reorganize agricultural land and production by elaborating adapted agricultural processes for crop and cattle production. This intervention consisted in organizing a web of experimental stations whose role was to identify appropriate plants to the appropriate soil, craft and distribute high-yielding seeds to the farmers and optimize the agricultural cycle that could allow them to valorize their fields all year round. Similar processeses of rationalization were laid out for cattle ranching.[28] As the second level of intervention, the SPVEA focused on 'the recovery' of existing population of extractivist tappers and trained professional

27 SPVEA. *Perspectiva do primeiro plano quinquenal e concepção preliminar da valorização econômica da Amazônia*, p.20.

28 SPVEA. *Perspectiva do primeiro plano quinquenal e concepção preliminar da valorização econômica da Amazônia*, p.5-6; SPVEA. *Primeiro Plano Quinquenal,* p.76.

farmers to operate these rationalized units of agricultural production. Instructing the farmers ranged from improving their technical knowledge, their capacities and transforming their conceptions of agriculture by deploying teams of agronomists and experts to assist them.[29] Finally, the third level of intervention consisted in designing an appropriate economic framework to stimulate competitive agricultural development. The SPVEA planners thus sought to create a special credit system — the *crédito bancário rural* — to enhance public and private investment in agricultural production, to organize the farmers in cooperatives to grant them and their production a power position on local and national markets as well as to establish a minimum price to protect local production against commercial speculation.[30]

Although promoted at the level of the zone, rational agriculture, cattle ranching and the extraction of raw materials were also coordinated at the level of the region and linked by industrialization processes. The development of agriculture and the expansion of the extraction sector were accompanied by large-scale industrial projects. The SPVEA aimed to expand the extractive sector to include forestry, mining and fishing and reinforce each sector with the creation of an industrial machinery to process the raw materials into manufactured goods. For forestry, for instance, the SPVEA sought to create several factories to produce plywood, paper, construction products and a shipyard to build a fleet of wooden fishing boats.[31] Similar industrialization processes were planned in the agricultural sector where the goal was to enable the production of foodstuff for the region. Industrialization was conceived as a building

29 SPVEA. *Perspectiva do primeiro plano quinquenal e concepção preliminar da valorização econômica da Amazônia,* p.6, p.14-15.

30 SPVEA. *Perspectiva do primeiro plano quinquenal e concepção preliminar da valorização econômica da Amazônia*, p.6, p.8.

31 SPVEA. *Perspectiva do primeiro plano quinquenal e concepção preliminar da valorização econômica da Amazônia,* p.6; Relatório das atividades do Conselho Naconal de Pesquisas em 1956. C/IP, CNPq. t.1.2.007-0013, p.69; REIS, Arthur Cézar Ferreira. O planejamento regional — suas características e particularidades, ensinamentos decorrentes de experiências estrangeiras. *Revista Brasileira de Geografia*, vol. 20, n. 4, p.373-374, out./dez. 1958.

block of Amazonia's modernization. The resulting manufactured goods were then utilized, in return, to strengthen agriculture, cattle ranching and extraction as well as to improve the general living conditions of the Amazonians. The growing wood industry was to provide the material required to sustain colonization and build agricultural settlements, while the food industry was to guarantee Amazonia's self-sufficiency and facilitate the fixation of man, helping to supply the labor force required by the labor-intensive extraction sector.[32] Altogether the coordinated development of these labor-intensive zones would eventually counter old patterns of dispersion associated with traditional extractivism by concentrating and sedentarizing the population.[33] In turn, this process would facilitate the enhancement of other aspects of Amazonian life such as health and education.[34]

Finally, the *Plano* was not only coordinated and all-encompassing in approach but national and global in scale. The SPVEA sought through the *Plano's* local and regional interventions to transform Amazonia into a significant actor of the nation's development and a leading raw material provider on the growing postwar international markets. The agro-industrial powerhouse the SPVEA planned to build in Amazonia was organized to supply transformed products suitable for the growing industry of the southeastern regions of Minas Gerais, Rio de Janeiro and São Paulo. The *Comissão* sought, for instance, to increase rubber production by planning the plantation of 45.000 hectares of rubber trees to supply the automotive industry in Brazil's southeast.[35] Furthermore, the SPVEA imagined Amazonia as a major export region, flooding

32 SPVEA. *Perspectiva do primeiro plano quinquenal e concepção preliminar da valorização econômica da Amazônia,* p.5-7.

33 SPVEA. *Perspectiva do primeiro plano quinquenal e concepção preliminar da valorização econômica da Amazônia,* p.22-23.

34 SPVEA. *Perspectiva do primeiro plano quinquenal e concepção preliminar da valorização econômica da Amazônia,* p.12-14, p.26.

35 SPVEA. *Perspectiva do primeiro plano quinquenal e concepção preliminar da valorização econômica da Amazônia,* p.7; SPVEA. *Primeiro Plano Quinquenal*, p.85, p.90.

international markets with a variety of local natural commodities.[36] This entailed the construction of export infrastructures including silos, warehouses, industrial slaughterhouses, cold storage rooms, and purge chambers to valorize, sort out, store and package foodstuff for international exports.[37] Besides improving the infrastructure for commercial exportation, the *Comissão* was empowered to establish commercial ties with neighboring countries.[38]

This export industry was supported by the construction of an ambitious multimodal transport system to open up Amazonia and fully insert it in national and international markets. With a better connection between Brazil's north and south, modernized harbors and river transport systems and the construction of airports the SPVEA sough to connect the 28 valorization zones to each other as well as Amazonia to the rest of the country and to international markets.[39] Besides accelerating the exportation of Amazonian production, it also facilitated workforce mobility into Amazonia at national scale. In that regard, the SPVEA planned the construction of multiple highways between Maranhão and Belém, Anápolis and Belém and Cuiabá and Porto Velho to facilitate the spread of existing pioneer fronts in the States of Maranhão, Goiás and Rondônia.[40] The completion in 1960 of the 2.200 km long highway between Belém and Brazil's new capital Brasília symbolized the SPVEA's attempt to open up Amazonia and integrate the region into the rest of the nation.

In just over five years, the SPVEA thus set the foundations to an ambitious transformation of Brazil's Amazonian hinterland. With the *Plano*, Reis and the *Comissão* aimed at shaping Amazonia into a modern

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36 SPVEA. *Primeiro Plano Quinquenal,* p.85, p.91-92.

37 SPVEA. *Primeiro Plano Quinquenal*, p.85.

38 CARDOSO, Iberê de Souza; CARVOLIVA, Aédo de. *Superintêndencia do plano de valorização econômica da Amazônia*, p.19.

39 SPVEA. *Perspectiva do primeiro plano quinquenal e concepção preliminar da valorização econômica da Amazônia,* p.9-12.

40 SPVEA. *Perspectiva do primeiro plano quinquenal e concepção preliminar da valorização econômica da Amazônia,* p.9.

agro-industrial complex that could extract, transform and valorize its own resources. Unlike past Amazonian campaigns, and although its results turned out to be rather limited, the SPVEA and its Plano was novel in the way it systematically relied on applied science and technology, the way it approached all dimensions of modernization together and in the scale at which it intended to carry out this task.[41] Through its integrated, region-wide and science-driven approach to Amazonia's underdevelopment, the *Plano* undergirded a cognitive appropriation of Amazonia. The *Plano* promoted and organized the wholesale commodification of Amazonia's bio-social reality and the malleable re-ordering of its social and natural spaces as the basis of a socio-economic model organized on the idea of increased exploitation. In a last section, I will dissect this appropriation of nature that the *Plano's* approach cultivated, and highlight how this shift in perspective organized an anthropocenic mental landscape, which triggered the Great Acceleration and its material effects in Amazonia.

Preparing the Great Acceleration in Amazonia: the Primeiro Plano Quinquenal as an anthropocene culture

The *Plano* was an ambitious modernization plan, but one that eventually fell short of producing the intended agro-industrial transformation of Amazonia. Yet, even though it did not create in Amazonia an actual acceleration of the patterns of production and consumption associated to the Great Acceleration, the SPVEA assembled through it a technocratic culture that was nevertheless conducive of the Great Acceleration. This technocratic culture comprised a new approach to Amazonia's reality, a new set of methods, knowledge and techniques to comprehend and transform the region's bio-social composition and a combination of discourses and symbolic representations that linked the increased

41 For an evaluation of the causes of the Plano's relative failure, see: TRINDADE, 2016, p.55-60, p.117-118.

economic exploitation of the Amazon basin to Brazil's national narrative. As I will show in this last section, The *Plano's* imagined agro-industry and the technocratic apparatus mobilized by the SPVEA to design and implement it created a set of representations, needs and meanings that culturally prepared and exalted the patterns of production and consumption associated with the Great Acceleration, which materialized later on under the military regime (1964-1985).

The *Plano's* goal to convert Amazonia into a blooming agro-industrial region entailed a large-scale and multilevel re-ordering of its bio-social structure. Rational agriculture induced the transformation of untouched forests into productive farmlands and cattle ranches. It also implied a modification of the biotic reality of the region as the *Plano* sought to adapt endemic plants into farmable goods or, organize their wholesale replacement by imported farmable crops and cattle. The industrial extraction of the region's untapped resources was another important pole of action of the *Plano* that conveyed significant alteration of Amazonia's landscape. The *Comissão* ventured into new extractive industries such as mining, logging and drilling, which required high-impact technologies and the deployment of large-scale and environmentally disruptive interventions like the construction of dams and highways. Via this planned reordering of the Amazon basin, the SPVEA conferred to the region's biological reality the economic function of a plentiful pool of resources and in turn signaled the availability of the region as a provider of raw material. By framing Amazonia as such, the SPVEA thus linked the region to expectations and demands that encouraged its exploitation.

The *Comissão* sought to conduct this re-ordering of Amazonia based on science and created to this end a potent technoscientific apparatus, which stood at the core of the *Plano's* interventions. As we have seen, scientific research and technological fixes informed every stage of the *Plano's* making and operated as a machinery of appropriation through which Amazonian nature was given new meanings, features, purposes and values that served and stimulated its exploitation. This technoscientific appropriation and its anthropocenic implications were exemplified by the *Comissão's* "recovery of nature" and the "recovery of

man".[42] The many scientists and technicians that were hired through the *Plano* enabled the SPVEA planners to conceive nature as a manageable, quantifiable and malleable system. As we have seen with *zoneamento*, science helped the *Comissão* to re-order, territorialize and functionalize the Amazon region. By identifying favorable areas of development based on a combination of social, environmental and geological factors, *zoneamento* attributed a function for each territory to either provide resources to exploit, land to occupy or the natural means for people to circulate and goods to flow in and out of the region. Nature could be valorized, that is altered — and, in the process, deteriorated — to serve the production of the resources thought to be required to insert the region into the rest of Brazil and establish it as an abundant storehouse.

As with nature, the *Plano* organized the appropriation of the 'Amazonian man' and its social life as well. This "disciplining action", as the SPVEA planners described it, consisted in training the Amazonian to become the modern agriculturalist to make Amazonia into a land of plenty.[43] The advent of the agriculturalist entailed a shift from the primitive condition of tapper, dependent of nature's givings — or "God's will" as Reis put it — to the condition of an anthropocenic agent empowered to dominate and commodify nature to satisfy his and Brazil's modernization.[44] "The recovery of Amazonia's extractivist populations" entailed a multilevel regeneration that ranged from ridding the Amazonian of obsolete techniques and lifestyle to improve his physical, social and technical fitness.[45] Just as with the recovery of nature, the scientist was an important cogwheel of the machinery undergirding the SPVEA's 'recovery of man'. Via a system of

42 SPVEA. *Perspectiva do primeiro plano quinquenal e concepção preliminar da valorização econômica da Amazônia,* p.4.

43 SPVEA. *Perspectiva do primeiro plano quinquenal e concepção preliminar da valorização econômica da Amazônia,* p.4.

44 REIS, Arthur Cézar Ferreira. A integração da Amazônia à civilização brasileira. In: REIS, Arthur Cézar Ferreira. *A Amazônia e a Integridade do Brasil*. Manaus: Edições Governo do Estado do Amazonas, 1966. p.297.

45 SPVEA. *Perspectiva do primeiro plano quinquenal e concepção preliminar da valorização econômica da Amazônia,* p.5.

Rural Cultural Missions, Rural Social Centers and a wide range of technical schools, a battery of specialists were deployed in farms and factories to create a 'modern man' with "a new mental equipment" by introducing "a large number of new techniques, new lifestyles and new worldviews".[46] Just as with the Amazonian ecosystem, the empowerment of the Amazonian came at a price. Locals were expected to sacrifice their experience-based ways of life, knowledges and practices to fit into the SPVEA's forced march to modernity whereas natives were not even included by Reis and the *Comissão* who categorized them as part of the realm of nature.

With the *Plano* the SPVEA planners did not just produce a technical apparatus that promoted the appropriation of nature but associated to it broader ideological meanings. Reis and his staff interlocked the development of Amazonia with Vargas' and Kubitschek's nation-wide developmentalist ambition. As Cardoso and Carvoliva explained, the *Comissão* considered "the problems of Amazonia [to be], ultimately, the problems of Brazil".[47] They understood Amazonia, and more specifically the process of its transformation as an experience of wider relevance to the country's larger developmental and nation-building agenda. The *Comissão* conveyed through the *Plano* an anthropocenic vision of the Brazilian nation and its advancement. Just as Vargas did with the *Marcha*, Reis made the appropriation of Amazonian nature into an integral part of Brazil's nation-building project. When Vargas made the occupation of the Amazon basin into Brazil's civilizational frontier, Reis erected the technocratic transformation and exploitation of Amazonia into a foundational experience of the Brazilian nation.

Vargas sought with the *Marcha* and the *Batalha* to tackle "the great enemy of Amazonian progress" — i.e., emptiness.[48] In his famous speech

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46 SPVEA. *Perspectiva do primeiro plano quinquenal e concepção preliminar da valorização econômica da Amazônia*, p.13-15.

47 CARDOSO, Iberê de Souza; CARVOLIVA, Aédo de. *Superintêndencia do plano de valorização econômica da Amazônia*, p.8.

48 VARGAS, Getúlio. Discurso do Rio Amazonas. *Revista Brasileira de Geografia*, vol. 4, n. 2, p.260, abr./jun. 1942.

of the Rio Amazonas, in 1940, Vargas condemned the nomadic extractivist socio-economy of the *nordestino* settler, the *seringueiro* and the riverside trader and promoted new modes of occupation that could seal the region's integration to the national body.[49] Both the *Marcha* and the *Batalha* searched via rational rubber production to empower the Amazonian frontiersmen to not just expand Brazil's frontier as they did in the past, but durably occupy the region. To this end, the Estado Novo also appealed to science and technology to enhance the colonizing capacity of the frontiersman and made him into the leading agent of Amazonia's brazilianization, which the propaganda figure of the *Soldado da Borracha* — the modern rubber tapper — embodied until 1945 (Garfield, 2013, p.22-23, p.45; Secreto, 2007, p.117, p.120).

With the *Plano, Reis* followed Vargas' trail for he granted national and ideological values to the appropriation of Amazonia as well. Yet, while Vargas focused on stimulating occupation via sponsored rubber tapping, Reis scaled up Vargas' ambition by pursuing a full-blown technocratic transformation of the region's bio-social reality. Reis conceived Brazil as the product of state action and scientific planning. In his view, the authority of the central government enlightened by rational expertise was the root and safeguard of the Brazilian national project. As historian, Reis found in Portugal's colonizing project a planning and technocratic spirit that he conceived as the genesis of Brazil (Pacheco, 2012, p.97-99; Dantas, 2014; Lobato, 2016).[50] The structuring and civilizing action of the Portuguese colonial state, created, perfected and unified the newfound land into a relatively homogenous entity called Brazil. For Reis, this technocratic spirit of the Portuguese state supplanted Vargas' pioneering spirit as Brazil's main organizing force.

Reis believed that the SPVEA was the most promising emanation of Brazil's lost technocratic spirit. The narrative that underlay the action of the SPVEA and that Reis and the *Comissão* projected on Brazil

49 VARGAS, Getúlio. Discurso do Rio Amazonas, p.260.

50 REIS, Arthur Cézar Ferreira. *Limites e demarcações na Amazônia Brasileira.* A fronteira com as colônias Espanholas. Rio de Janeiro: Imprensa Nacional, 1947.

was technocratic, developmentalist but also inherently anthropocenic. Through the SPVEA, Reis sought to "safeguard national sovereignty and [exploit] the potentiality of Brazil".[51] The multitude of scientists and specialists involved with the SPVEA embodied this technocratic spirit by 're-making' the environment into a resource and the Amazonian into the rational manufacturer who could implement this transformation to serve the advancement of the nation. By organizing the technocratic appropriation of Amazonia, transforming its biological reality into consumable objects and framing this process as the condition for the advancement of Brazil, the SPVEA did not only encourage the jump of the Amazon region into the Great Acceleration but also linked to it the making of Brazil as a developed nation.

Conclusion

In this article, I showed how the SPVEA introduced via the *Primero Plano Quinquenal* an Anthropocene culture that constructed the mental landscape, designed the technocratic method and assembled the ideological framework that prepared the Great Acceleration that took place in the Brazilian Amazon from the late 1960s.

This Anthropocene culture was essentially technoscientific in character. The *Comissão* enrolled a large and inter-disciplinary scientific workforce and installed a web of specialized agencies to design and carry out the task of modernization. Via this technocratic apparatus, scientists produced a new body of scientific knowledge, new technologies and a set of sociotechnical interventions that the SPVEA planners mobilized at every level of the modernization process. Based on this technoscientific infrastructure, the SPVEA planners designed a multi-level and coordinated approach to modernization by which they addressed Amazonia as a whole, framed its bio-social reality into economical assets and gave to the region a national and global significance.

51 REIS, Arthur Cézar Ferreira. A integração da Amazônia à civilização brasileira. In: REIS, Arthur Cézar Ferreira. *A Amazônia e a Integridade do Brasil*, p.309.

Responding to the demands of national development and the postwar international pressure on natural resources, the SPVEA linked the goal of re-inventing Amazonia as a modern agro-industrial society to the ambition of making the region into Brazil's machinery of progress and the world's future storehouse. Altogether, the process of commodification and commercialization of Amazonia's biological reality underlying the *Plano's* modernization goals was embedded within a new, anthropocenic vision of the nation that established the rational exploitation of nature as Brazil's gateway to progress.

Despite its limitations, the *Plano* thus crafted an anthropocenic conception of the Amazon region and a technocratic culture that prepared the region's entrance in the Great Acceleration a decade later. The SPVEA introduced culturally, institutionally and scientifically the developmentalist push that the military regime forcefully endorsed till its demise in 1985. From the mid-1960s, the regime launched the *War of Development* through *Operação Amazônia* and under the guidance of an empowered SPVEA, named the Superintendency for the Development of Amazonia (SUDAM). The regime marked the climax of modernization in Amazonia. Just as postulated a decade earlier by Reis and the SPVEA, the military regime melded authoritarian economic planning, heavy state interventionism with a reliance on high-impact techno-scientific processes to tackle the underdevelopment of Amazonia and connect it to the rest of Brazil. The colonization and development of the Amazon basin was pursued through pharaonic highway, dam and agricultural projects like Volkswagen's *Companhia Vale do Rio Cristalino* 140.000-hectare computerized cattle ranch. The expected emancipatory effects of modernization as imagined by the SPVEA and implemented by the military regime however gave way to unprecedented destruction in Amazonia and eventually contributed to make Brazil a major protagonist of global carbon emissions and climate change (Acker, 2017, p.68-70, p.262-290).

Bibligraphical references

ACKER, Antoine. *Volkswagen in the Amazon.* The Tragedy of Global Development in Modern Brazil. Cambridge: Cambridge University Press, 2017.

BUCKLEY, Eve. *Technocrats and the Politics of Drought and Development in Twentieth-Century Brazil*. Chapel Hill: The University of North Carolina Press, 2017.

CAMPOS, André Luiz Vieira de. *Políticas internacionais de saúde na Era Vargas*. O Serviço Especial de Saude Pública, 1942-1960. Rio de Janeiro: Fiocruz, 2006.

CHAMBOULEYRON, Rafael. Cacao, Bark-Clove and Agriculture in the Portuguese Amazon Region in the Seventeenth and Early Eighteenth Century. *Luso-Brazilian Review*, vol. 51, n. 1, p.1-35, 2014.

D'ARAÚJO, Maria Celina. Amazônia e desenvolvimento à luz das políticas governamentais: a experiência dos anos 50. *Revista Brasileira de Ciências Sociais*, vol. 7, n. 19, p.40-55, 1992.

DANTAS, Hélio. *Arthur Cézar Ferreira Reis*. Trajetória intelectual e escrita da história. Jundiaí: Paco Editorial, 2014.

DEAN, Warren, *With Broadax and Firebrand*. The Destruction of the Brazilian Atlantic Forest. Berkeley: University of California Press, 1997.

DOMINGUES, Heloisa Maria Bertol; PETITJEAN, Patrick. International science, Brazil and Diplomacy in UNESCO (1946-1950). *Science, Technology and Society*M vol. 9, n. 1, p.29-50, 2004.

ENGERMAN, David; GILMAN, Nils; HAEFELE, Mark and LATHAM, Michael (eds.). *Staging Growth*. Modernization, Development and the Global Cold War. Amherst: University of Massachusetts Press, 2003.

ESCOBAR, Arturo. *Encountering Development*. The Making and Unmaking of the Third World. Princeton: Princeton University Press, 1994.

FEITOSA, Orange Matos; SAES, Alexandre Macchione. O plano de defesa da borracha: entre o desenvolvimentismo e a negligência política ao norte do Brasil, 1900-1915. *América Latina en la Historia Económica*, vol. 20, n. 3, p.138-169, 2013.

GALISON, Peter; HEVLY, Bruce William. *Big Science.* The Growth of Large-scale Research. Stanford: Stanford University Press, 1992.

GARFIELD, Seth. *In Search of the Amazon.* Brazil, the United States, and the Nature of a Region. Durham and London: Duke University Press, 2013.

HAMBLIN, Jacob Darwin. The Vulnerability of Nations: Food Security in the Aftermath of World War II. *Global Environment*, vol. 10, p.42-65, 2012.

HECHT, Susanna. *The Scramble for the Amazon and the "Lost Paradise" of Euclides da Cunha*. Chicago: University of Chicago Press, 2013.

HOCHMAN, Gilberto. *The Sanitation of Brazil*. Nation, State and Public Health, 1889-1930, Urbana: University of Illinois Press, 2016.

ISSBERNER, Liz-Rejane; LÉNA, Philippe. Anthropocene in Brazil: an Inquiry into Development Obsession and Policy Limits. In: ISSBERNER, Liz-Rejane; LÉNA, Philippe Léna (Org.) *Brazil in the Anthropocene.* Conflicts between Predatory Development and Environmental Policies, London, New York: Routledge, 2016. p.1-15.

KRIGE, John; WANG Jessica. Nation, Knowledge and Imagined Futures: Science, Technology and Nation-Building, Post-1945. *History and Technology,* vol. 31, n. 3, p.171-179, 2015.

KRIGE, John; BARTH, Kai-Henrik. Science, Technology and International Affairs. *Osiris*, vol. 21, n. 1, p.1-21, 2006.

LOBATO, Sidney. O futuro da Amazônia: horizonte de expectativa de Arthur Reis (década de 1950). *Confins – Revue franco-brésilienne de géographie*, n. 28, 2016.

MAIO, Marcos Chor. A UNESCO e o projeto de criação de um laboratório científico internacional na Amazônia. *Estudos Avançados,* vol. 19, n. 53, p.115-130, 2005.

MARQUES, Gilberto. SPVEA: o estado na crise do desenvolvimento regional Amazônico (1953-1966). *Revista de Sociedade Brasileira de Economia Política,* n. 34, p.163-198, 2013.

MCCANN, Frank. *The Brazilian-American Alliance, 1937-1945*. Princeton: Princeton University Press, 1974.

MCNEILL, John; ENGELKE, Peter. *The Great Acceleration.* An Environmental History of the Anthropocene since 1945. Cambridge: Belknap Press of Harvard University Press, 2014.

OLIVEIRA JR, Antonio de. Amazônia: a gênese de uma região de planejamento. *Revista de Ciências Humanas* vol. 9, n. 1, p.37-53, 2009.

PACHECO, Alexandre. A narrativa heroico-nacionalista de Arthur Reis na representação da defesa da Amazônia pelos portugueses e luso-brasileiros em *A Amazônia e a cobiça internacional* - anos de 1960. *Historia da Historiografia,* vol. 10, p. 94-110, 2012.

PÁDUA, José Augusto. Brazil in the History of the Anthropocene. In: ISSBERNER, Liz-Rejane; LÉNA, Philippe Léna (Org.) *Brazil in the Anthropocene.* Conflicts between Predatory Development and Environmental Policies. London, New York: Routledge, 2016. p.19-40.

PANZU, Ângela Nascimento dos Santos. *O Instituto Nacional de Pesquisas da Amazônia:* trajetória institucional por meio de suas pratícas científicas*, 1954-1975*. Dissertation (Mestre em História) - Universidade Federal do Amazonas. Manaus, 2015.

REINISCH, Jessica. Internationalism in Relief: the Birth (and Death) of UNRRA. *Past and Present,* vol. 210, n. 6, p.258-289, 2011.

SANJAD, Nelson. *A coruja de Minerva*. O Museu Paraense entre o Império e a Republica (1866-1907). Rio de Janeiro: Editora Fiocruz; IBRAM; MPEG, 2010.

SECRETO, María Verónica Secreto. A ocupação dos "espaços vazios" no governo Vargas: do "Discurso do rio Amazonas" à saga dos soldados da borracha. *Revista Estudos Históricos,* vol. 2, n. 40, p.115-135, 2007

STAPLE, Amy. To Win the Peace: the Food and Agriculture Organization, Sir John Boyd Orr, and the World Food Board Proposals. *Peace and Change,* vol. 28, n. 4, p.495-523, 2003.

STEFFEN, Will; BROADGATE, Wendy; DEUTSCH, Lisa; GAFFNEY, Owen; LUDWIG, Cornelia. The Trajectory of the Anthropocene. The Great Acceleration. *The Anthropocene Review*, vol. 2, n. 1, p.81-98, 2015.

STEPAN, Nancy, *Beginnings of Brazilian Science*. Oswaldo Cruz, Medical Research and Policy, 1890-1920, New York: Science History Publications, 1976.

TRINDADE, José Raimundo Barreto (ed.), *Seis décadas de intervenção estatal na Amazônia*. A SPVEA: Auge e crise do ciclo ideológico do desenvolvimentismo Brasileiro. Belém: Editora Paka-Tatu, 2014.

WENSTEIN, Barbara. *The Amazon Rubber Boom, 1850-1920*. Stanford: Stanford University Press, 1983.

WHITE, Nicholas. Reconstructing Europe through Empire: the British, French, and Dutch Experiences Compared. Past and Present, vol. 210, n. 6, p.211-236, 2011.

WILKINSON, Xenia Vunovic. *Tapping the Amazon for Victory: Brazil's "Battle for Rubber" of World War II*, PhD thesis – Georgetown University, 2009.